STATE OF MARYLAND

DHMH

Maryland Department of Health and Mental Hygiene
Office of Health Care Quality
Spring Grove Center, Bland Bryant Building
55 Wade Avenue, Catonsville, Maryland 21228-4663
Larry Hogan, Governor - Boyd K. Rutherford, Lt. Governor - Dennis R. Schrader, Secretary

Standard Deviation & Coefficient of Variation Calculation Worksheet & Instructions

1. Collect the quality control values for Level 1 and Level 2 for each analyte tested in Maryland. If the LDL value is a calculation them the CV% does not need to be calculated.
2. Use two worksheets for each analyte (Level 1 & 2) per analyzer Or use a program on the internet for calculating Standard Deviation & Coefficient of Variation.
3. Transfer data to Analyzer Pre-field Evaluation & Coefficient of Variation Report. There should be one worksheet per analyte.
4. Each analyzer should have 4-5 Analyzer Pre-field Evaluation & Coefficient of Variation Reports.
5. These worksheets are due the first Monday of April and October of each year.
6. If you have any questions contact Gail McGucken at 410.401.8023 or at gail.mcgucken@maryland.gov .

Test: _____

# OF VALUES	DATE	VALUE	MEAN X	DEVIATION	DEVIATION SQUARED X
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
Total = 10		Total =			
		#1-Sum of values/ total=mean			Sum of Deviation Squared

To Calculate the Mean:

#1- Sum of values obtained from each control and divide by the total number of values.

$$\text{Mean} = \frac{\text{sum of values}}{\text{the \# of values}} = \bar{X}$$

To Calculate Standard Deviation:

Step 2 Subtract each of the scores from the mean. Record the difference in the DEVIATION column. Be sure to record whether the answer is positive (+) or negative (-).

Step 3 Find the square of each number DEVIATION column and record it in the DEVIATION SQUARED column.

Step 4 Find the Sum of the Deviation Squared all the squared values and divide by the total number of

$$\textbf{SD} = \text{Square root of: } \frac{\text{Sum of deviation squared}}{(\text{the \# of values} - 1)}$$

Step 5 Find the square root of the value in step 4. Step 6 This value equals one standard deviation (SD).

$$s = \sqrt{\frac{\sum (x - \bar{x})^2}{n - 1}}$$

To Calculate Coefficient

of Variation: Step 7**s** = 1

standard deviation.

$$CV = \frac{s}{X} \times 100\%$$

$\bar{x}$ = mean (the mean value obtained from step 1)

% CV =____x 100

% CV = ____

http://calculator.tutorvista.com/coefficient-of-variation-calculator.html Free online calculator can be used as well.